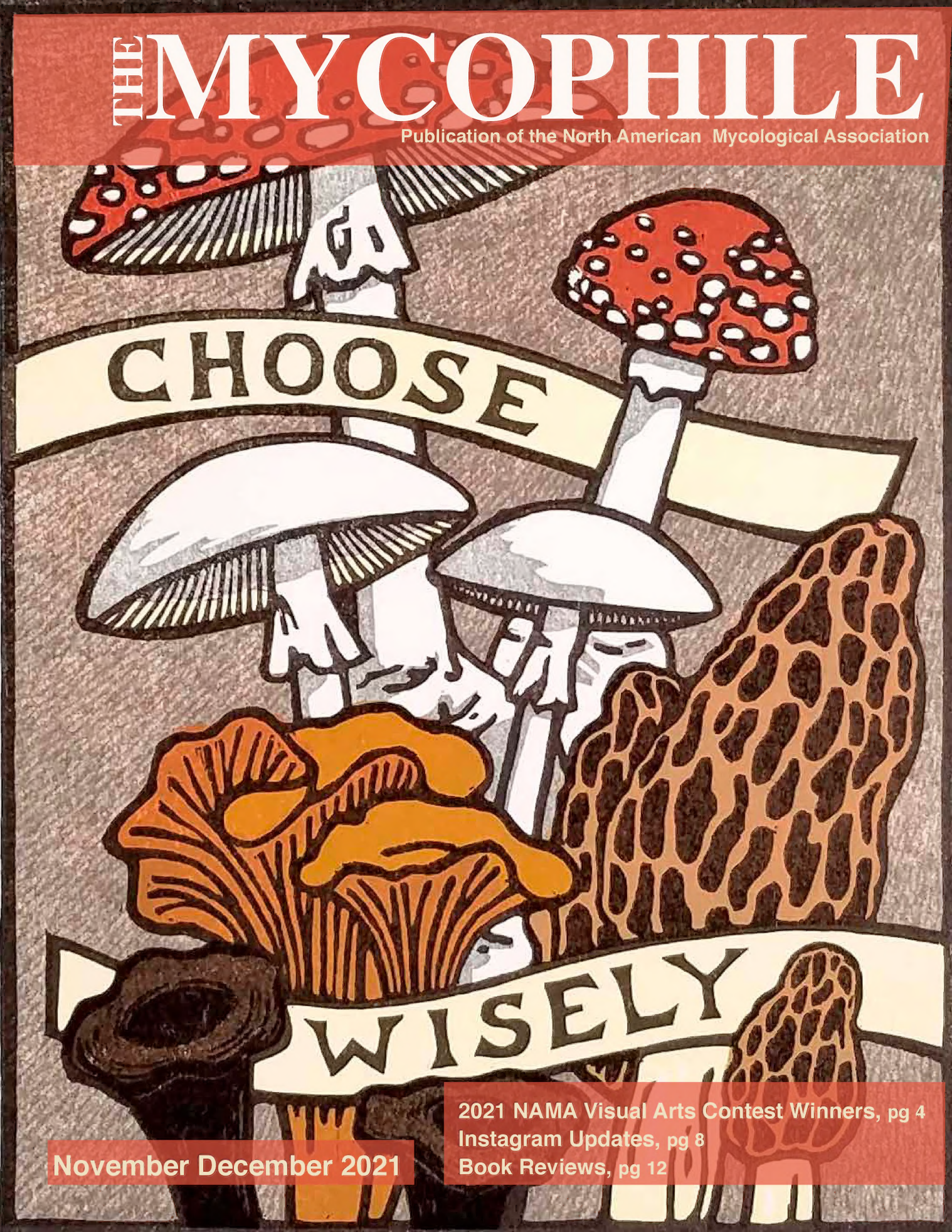
THE MYCOPHILE

Publication of the North American Mycological Association



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November December 2021

President's Letter

by Barbara Ching

For my last column as NAMA President, I want to spotlight Karen Monger, our newsletter editor. Her reliability and excellent taste in subject matter has made our newsletter something to be proud of, to look forward to, to learn from, and above all, to reconnect with what the title promises: our pursuit of mushrooms and mycology.

Karen started her career as a pastry chef and developed her editorial skills by writing *Adventures in Edible Plant Foraging: Finding, Identifying, Harvesting, and Preparing Native and Invasive Wild Plants* (2016). With her husband, Robert Gergulics, and their daughter Gillian, she blogs and teaches foraging skills as "3 Foragers."

This beautiful steamed bun with minced wild-harvested Laetiporus gives you an excellent example of Karen's mycophagical prowess: http://the3foragers.blogspot.com/. Karen's interest in mushrooms and wild plants started when her husband insisted on learning the edible plants surrounding them in New England.

Steamed bun with minced wild-harvested *Laetiporus* Photo by 3 Foragers

Robert's family back in Hungary "implanted" a strong tradition of collecting wild fruits and fungi of the region, so he was interested in learning the edibles in his new home. They traveled extensively throughout the region with their daughter, seeking out local wild food mentors and purchasing every book available at the time. Since Robert's main hobby is photography, he spent many hours in fields and forests photographing plants, berries, roots, and greens for their blog.

Karen, Robert, and Gillian Photo by 3 Foragers

Mushrooms, however, were another story. An average American mycophobe, Karen was terrified of consuming wild mushrooms. The 3 Foragers needed a new set of mentors to show them the ways of the fungal world, and they found their "people" in the Connecticut Valley Mycological Society. Quickly recognized as obsessive myco-nuts, Karen was tasked with club membership and the newsletter, while Robert created a long-overdue website and became the Education Secretary. To continue traveling throughout the Northeast while experiencing the local fungi, they also joined the Boston Mycological Club, the newly formed Pioneer Valley Mycological Association, Connecticut Westchester Mycological Association, New York Mycological Society, Western Pennsylvania Mushroom Club, and New Jersey Mycological Association, and attended several annual regional forays run by the Northeast Mycological Federation.

In 2015, Karen and Robert were the head mycophagy chefs for the annual NEMF foray held in New London, CT, preparing an array of tasty treats for the attendees.

In 2019, Karen, Robert, and Gillian traveled to their first NAMA foray at Paul Smiths, NY. Since then, and throughout the tumultuous 2020 season, Karen has been editor of *The Mycophile*.

Going forward, Trent Blizzard will be writing this column and enjoying the opportunity to work with NAMA's multi-talented volunteers. Let him know if you want to be among them. After four years as NAMA's Executive Secretary and three years as President, I know from many happy experiences that he will have a rewarding time, and so will you.

Trent and Barbara at the First Annual Tri-County Foray, September 2021, in Barronett, Wisconsin

2021 Visual Arts Contest Winners

By Rose Tursi, Arts Committee Chair

The annual NAMA photography contest branched out for 2021 and morphed into the Visual Arts Contest, encompassing many dynamic media forms including sculpture, photography, textiles, drawing and painting, and digital art. Participants must be a resident of North America and may enter up to 6 pieces total in the contest. The art must visually depict fungi somewhere in the piece and/or use fungi as an ingredient. First place winner in each category receives a certificate and a one-year membership to NAMA, and will have their piece featured in the newsletter, *The Mycophile.*

Category Guidelines

Photography: Scientific and Pictorial photographs. Entries may not contain text or stickers/clipart, etc. (please enter those under the category Digital Art).

Digital Art: Includes photo manipulation, digital illustration, digital collage. May include some animated elements (for example, a gif.)

Drawing and Painting: Traditional pencil/charcoal drawings, ink, markers, watercolor, gouache, acrylic, oil, etc.

2D Mixed Media: Traditional artwork in which more than one medium or material has been employed. This category includes collage, assemblage, etc. Art can have some dimensionality, but is viewed primarily as 2D.

3D – Sculpture: Includes pottery, sculpture, jewelry, miniatures, 3D mixed media and any other dimensional crafts that do not fall under the category Fiber Arts'.

3D – Fiber Arts: Knitting, crocheting, felting, etc. Also includes all sewing, quilting and most wearable art. (Mixed media in which fiber and/or fabric are the primary component should be entered here.)

We received over 80 beautiful entries in our first annual art contest. All forms of art were accepted. A jury of professional artists, none connected to NAMA, were asked to select six winners from various categories. Artists ' names were hidden during the selection process, so the jurors saw only the work and medium used. After the jurors' deliberations, the following six pieces were chosen as winners.

Elise DiPace

Unnamed mixed media using mushrooms and other natural elements.
More of Elise's work can be found on Instagram:
@elisedipace and @magicalmushroomarrangements

Sneha Ganguly
New York Mycological Society.
'Vulture Tails,' 2020 incorporates mushroom paper made from *Trametes elegans, Neofavolus sp, Fomitopsis betulina, Ganoderma tsugae, Pycnoporus cinnabarinus*, dried *Stereum ostrea* from different stages of the life cycle, blood, turmeric, and wood charcoal tempera. You can view more of Sneha's art via Instagram @kali_mushrooms.

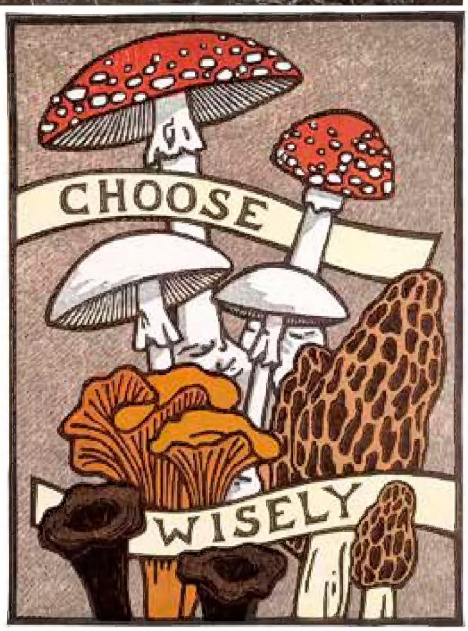
Callam Weatherbee
Sculpture depicting a morel mushroom.

Cheshire Mayrsohn
Cascade Mycological Society in Oregon
'Chanterelles and Boletes, oh my,'
The yarns are all lichen and mushroom dyed. *Boletopisis* for the background gray, *Sarcodon fusco-indicus* for the blue band, the yellow in the chanterelle is *Inonotus hispidus,* orange is *Hydellum aurantiacum.* The bolete body is yellow from *Boletus appendicutus, the brown is Pisolithus arhizus.*

Alison Pollack
The Mycological Society of Marin and the Mycological Society of San Francisco

Photograph of the fungus *Polycephalomyces* parasitizing a *Trichia botrytis* slime mold. Alison is a California Myxomycete/mushroom macro photographer; you can view more beautiful photos on Instagram @marin_mushrooms

Val Lucas
"Choose Wisely" a 9 x 12 reduction woodcut print. You can view more work from Val on Instagram @bowerbox (our cover image).



Congratulations
to our contest winners

Check out the breathtaking slideshow of all the contest entries under the Reels tab at NAMA's official Instagram account: @northamericanmyco https://www.instagram.com/tv/CSlbiaIgfcr/

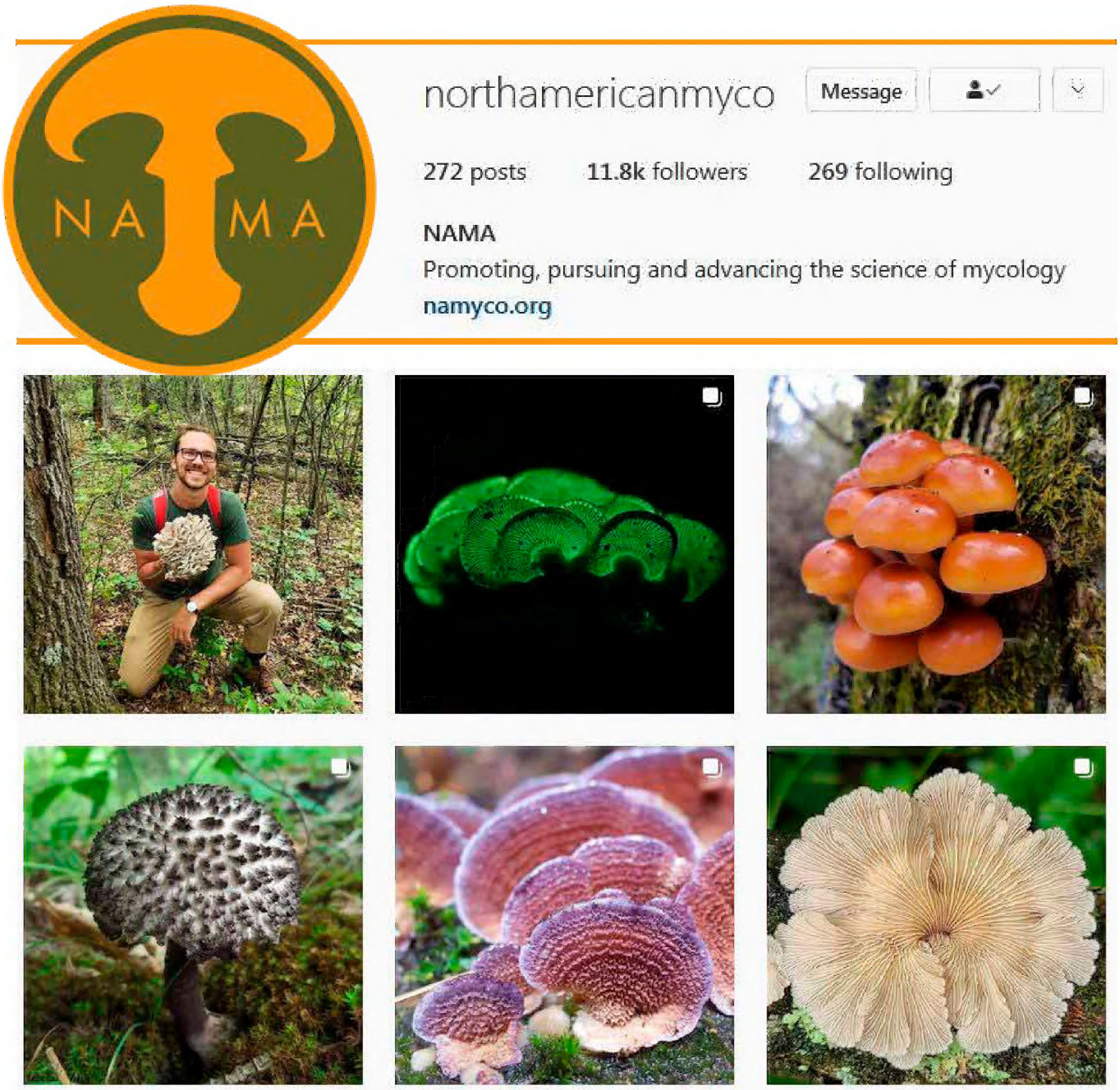
FunDiS seeks Executive Director

Fungal Diversity Survey (FunDiS) is looking for an Executive Director (ED), initially volunteer, to manage current programs and grow the organization. Created in 2017 as the North American Mycoflora Project, FunDiS is an all-volunteer 501(c)(3) nonprofit organization working to increase scientific knowledge and public awareness of the critical role of fungi in the health of our ecosystems. We do this by equipping community scientists, working with academic mycologists, with the tools to document the diversity and distribution of fungi across North America, with the aim of using those data to protect threatened fungi. Learn about our programs, publications, Board of Directors and more at *https://fundis.org/.*

FunDiS has accomplished a great deal in only four years as an all-volunteer community science organization, engaging thousands of community scientists and a dozen mycologists in a range of field studies, DNA barcoding, education and related activities. There's much more FunDiS can do with sufficient funding and fresh leadership to make us an effective voice for fungal conservation.

We seek an ED with the vision, experience and skills to turn FunDiS into a financially sustainable, professional voice for community science and fungal conservation. A passion for fungi is definitely a plus, but more important is vision, personality and skills to create a sustainable business model for FunDiS. We seek an ED who will actively seek funding for her/his position, as well as for additional staff and operations. Therefore, experience with grant fundraising or operating large fee-for-service programs is required. The position description is at *https://docs.google.com/document/d/1L1on-Lybd_ORepmT-C6YdY9YIY8hZOEkk-dymm_-kdW8Q/edit?usp=sharing*

Please share this with strong candidates. Resumes and letters of interest demonstrating fundraising experience should be sent to ed.search@fundis.org. We will continue looking until we find the right person.



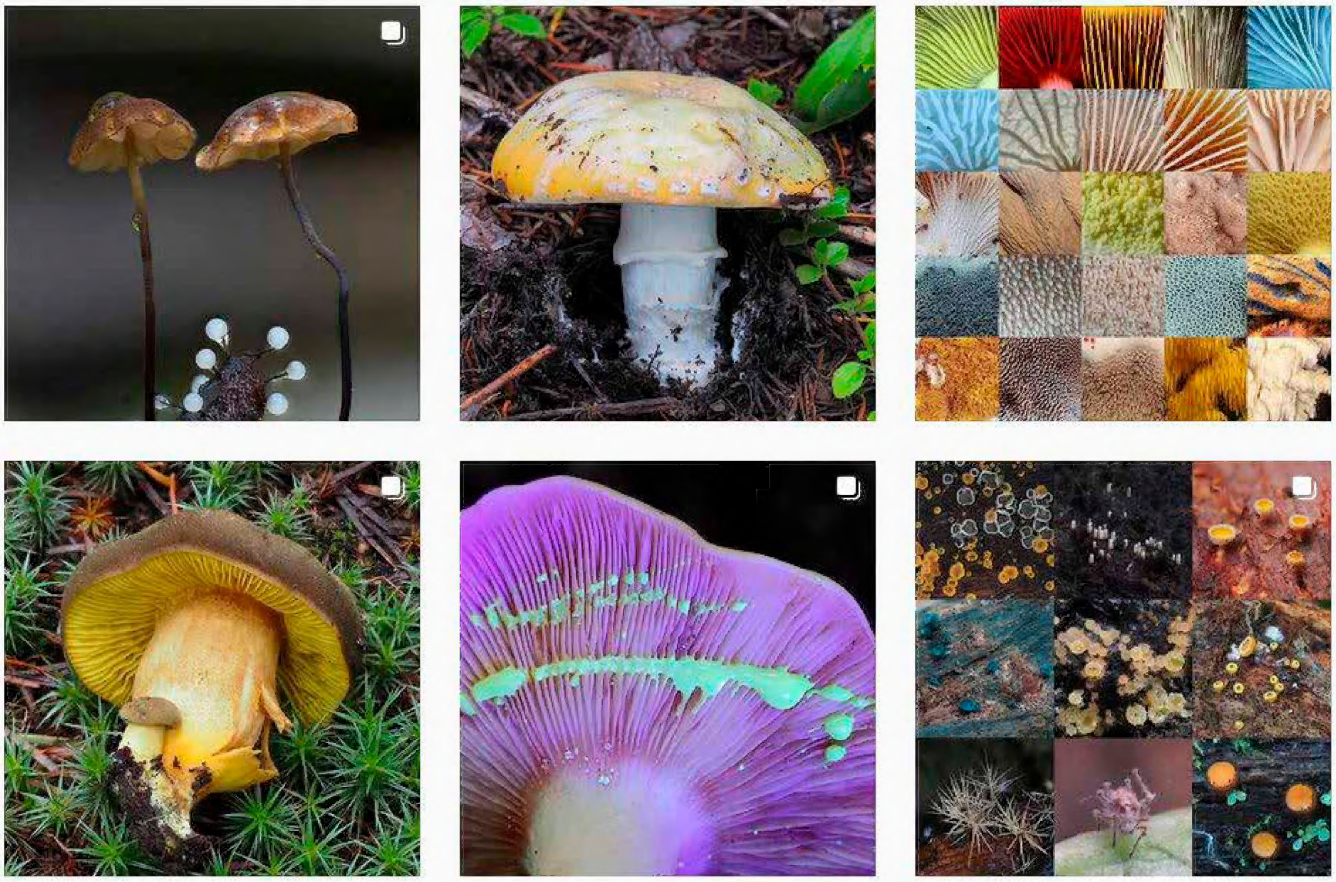
Images 1 @mnforager, 2-6 @nature_treasure_hunter

As of October 5th, the NAMA Instagram account has just over 10,100 followers up from 1,725 on April 15th.To the hosts, thank you. You have all given us the gift of your time and enthusiasm. You have passed the baton on our behalf a lot of times now and have helped the community continue to grow. All of the NAMA volunteers have felt the boost of inspiration and motivation over the past seven months from the growing Instagram community.

NAMA is extremely grateful for the following NAMA Instagram takeover hosts since those hosts mentioned in the May - June 2021 Mycophile Newsletter:

Jacob Alvarez @hacob_
Drew Zimmerman @unkle_fungus
William Padilla Brown @mycosymbiote
Lorelle Sherman @lorelllemorel

NAMA's INSTAGRAM IS GROWING
@northamericanmyco



images 1 @stucumber, 2-6 @enter_the_void

Rose Tursi @TursiArt
Elan Hagens @temptresstruffles
Heather Brooks @smallwoodlandthings
Jay Eeh and Sarah Faye @salty_old_
josh and @into_my_wild_self
Lacy Gillean @destroyingangel1
Leigh Ann Andrews @mushroom_
mama_official
Meg Madden @megmaddendesign
Maria Pinto @aravensgrace
Warren Cardimona @enter_the_void
Stu Pickell @stucumber_
Dr. Patty Kaishian @queendom_fungi

Alissa Allen @mycopigments
Kristen Blizzard @modernforager
Jess Starwood @jess.starwood
Jules Amanita @jules.amanita
Joey Kyle @manyhandspeacefarm
Eric Christianson @pisgahgourmet
Rachel Zoller @yellowelanor
Barbora Batokova @fungiwoman
Josh Doty @nature_treasure_hunter
Tim Clemens @mnforager
Jess Martin @ms.mycelia
Psathrella Vent @fungalizzy

On Hunting and Cooking Oyster Mushrooms

Pleurotus citrinopileatus by Dave Layton

Traveling through the deep woods near his West Virginia home, Charles McIlvaine saw an incredible abundance of clean, fresh fungi and he thought, ***This should be eaten.*** Certainly he saw in fungi food for a poor hungry population in those West Virginia hills after the Civil War; he himself was getting tired of eating only bacon. McIlvaine wanted to supplement his meals with "the dinners of the Caesars," but he bemoaned the lack of information about edibility. He persisted in testing almost any abundant fungi for edibility on himself - even being poisoned "often." If a golden oyster epidemic were raging in his hometown then, like it is where I live now, he might have been happy to teach the people about that one species. He could have fed himself and everyone around with them.

It's hard to imagine now how amazed we were to first find them in the wild less than two decades ago. Now these incredibly abundant mushrooms are overpowering other mushrooms and turning dead elms into dangerous mush before property owners can safely clear them. However, they are abundant, healthy, edible fungi that could provide excellent nutrition to a hungry population. In that spirit, the recipe I've included is simple, cheap, and very tasty.

When my wife, Sally, and I first started finding them we were a little put off by their sweet, yellowish flavor (hard to explain.) Sally was a little upset that they didn't taste at all like our native oyster mushrooms, which she really likes. Honestly, I kind of agreed with her. Now, however, the sheer abundance of this fungus especially when other wild edibles are sparse has assured that we eat our share of it. Often I sneak it into spaghetti sauce or an omelet and receive the comment of "they're okay but I'd prefer ***[insert any other wild mushroom here.]"***

These mushrooms are abundant when others are sparse because an organism in a large tree trunk or log will fruit almost every 6 weeks with different branches fruiting in succession, which might continue for several weeks after the early fruitings emerged. Hence it's possible to find fresh golden oyster at any given time from spring to fall. It has become rarer for me not to find golden oysters than to find them.

Over the years I've learned that some ingredients added to golden oysters would earn me comments like "That's not so bad" or "Those are better like that." However I'd soon be finding other favorite fungal delights in the woods and the golden oysters would just become part of our ever-changing scenery.

I found the tree pictured the same day I read about requests for recipes. It was too inviting not to experiment. This recipe earned the comment, "Yum I don't know why I didn't like these before."

Please note from the picture that there are brownish gray mushrooms next to the yellows. They're the same species but the gray ones are not fit to eat: they're desiccated. Never confuse old golden oysters with other oyster species. All species of fresh oyster mushrooms have very white gills.

The following recipe is a basic method of cooking these. They can be served as is or added to other things like pasta or eggs. In addition to being simple and cheap, this recipe is designed for the most basic food budget. I also left it vegan.

Basic Golden Oysters

2 cups fresh golden oyster mushrooms chopped to bite size pieces

1 clove garlic, finely chopped

½ tsp. rosemary, finely chopped

2 tsp. light olive oil or neutral vegetable oil, like sunflower oil

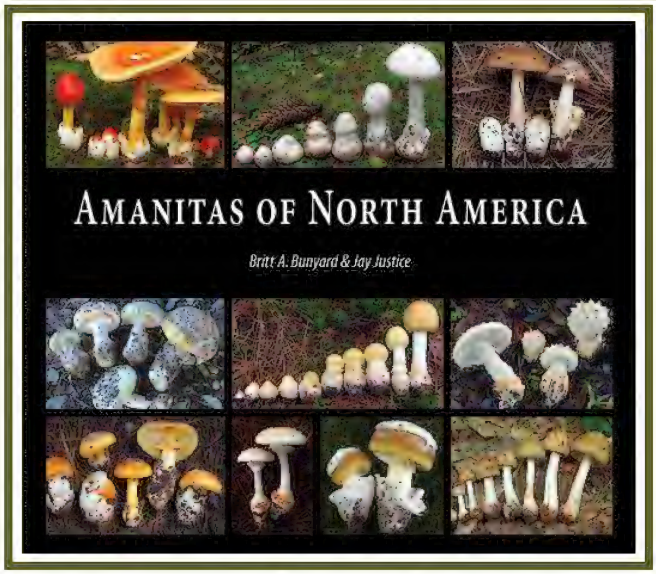
2 tsp. soy sauce

1TBSP Madeira wine

Heat oil on medium high in a large sauté pan. When sizzling, add garlic and rosemary and cook 30 seconds. Add in the mushrooms first, and add in soy sauce and wine, stirring thoroughly. Continue cooking 3 more minutes, stirring regularly until mushrooms show caramelized streaks of brown on slightly yellowish-tan caps. Serve as is or with potatoes or other starches like noodles or rice.

Like McIlvaine, I fervently hope these mushrooms become a food staple for the masses. I envision hundreds of people in my town out harvesting them, even cutting down dangerous dead elm trees in order to get to the ones up high. Eventually we'd slow their overpowering of native fungi if EVERYONE ate them. It would be fitting that we become the solution to this fungal epidemic that we unleashed to begin with.

NAMA Book Reviews



Amanitas of North America

Book Review by Debbie Viess

Authors: Britt A. Bunyard and Jay Justice

Publisher: The FUNGI Press (2020)
ISBN-978-0-578-67572
Hardcover: 336 pages
$60.00 USD

Substantial changes have occurred in our understanding of Amanitas since the publication of David Jenkins' 1986 book, *Amanita of North America*. The widespread use of DNA sequencing has brought many formerly cryptic species to light. A growing army of *Amanita*-focused amateur mycologists have steadily vouchered and documented their finds on websites like www.Mushroomobserver.org. And most of all, a retired Bell Labs engineer by the name of Rodham Tulloss has created a huge body of detailed work on the genus Amanita, available to all on his website, www.Amanitaceae.org. But it took authors Britt Bunyard and Jay Justice to gather and collate much of the most recent taxonomic knowledge about this fascinating genus, along with a wealth of *Amanita*-related topics, and present it in an easily accessible and attractive book form.

The heart and bulk of *Amanitas of North America* is dedicated to species descriptions. Information on a broad array of *Amanita* species was drawn from Tulloss' webpages and other sources, as well as the direct experiences of the authors. Many fine photos of Amanitas were borrowed from a broad array of photographers, pulled from the file-sharing site Mushroomobserver.org and from the authors' photo files.

Within this book, 120 *Amanita* species are described. Amanitas showcased range from Alaska to Mexico, along both coasts and throughout the heartland. Of that group of 120, 30 have not yet been formally published, the vast majority being Tulloss' provisional names. These provisional concepts are subject to change prior to actual

publication. For this reason, many mycologists prefer not to use provisional names at all. For example, the catch-all term *Amanita* "*amerirubescens*" described in the book refers to our evolving concept of eastern blushers, a group now thought to contain 9 separate species! Although the name "*amerirubescens*" is already widely (and prematurely, in my opinion) used in the amateur community, it will soon be retired.

The newly published *Amanita amerivirosa* (2021), one of several cryptic species of Eastern Destroying Angels, didn't make it into this book, and shows how rapidly things are changing in the world of *Amanita*. Although one of my favorite Amanitas, *Amanita regalis*, the russet-brown-capped former *A. muscaria* variant found in Alaska and Sweden, was not described, odds are that YOUR favorite *Amanita* is, and no doubt quite a few that you have never heard of.

To facilitate finding species descriptions, the authors break their book into familiar and recognizable sections of *Amanita*. If you are not already familiar with *Amanita* sections, you might have a harder go of it. Although the authors provide a key to those sections on pg. 25, the first couplet requires knowing amyloidity, and that requires Melzer's solution, something that most readers will not have on hand. But if you ignore that, you can probably find your section via macro-morph qualities.

Even those commonly understood sections, at least to us amateur amanitologists, are changing. A recent major paper by Cui (see addendum) reworks our entire concept of Amanita sections, all but eliminating section Lepidella, and replacing it with sections Strobiliformes and Roanokensis. According to Cui *et al*, the former section Lepidella is polyphyletic (deriving from several genetic lines) and must therefore be broken up. Only the saprobic Amanitas remain in Lepidella in the Cui revision. The proposal by Redhead *et al* in 2016 to rename these saprobic Amanitas as genus *Saproamanita* is gaining traction.

Call them what you will, the former Lepidellas, which are often large, white and similar looking primitive *Amanita* species, are a difficult group to identify. The authors provide a nice key to their identity under their old section name of Lepidella on pg.198; no matter their new section names, the species remain the same.

I was disappointed to see that other sections of Amanita did not receive the same treatment. Keys are highly useful when first starting out, and when one doesn't really know a genus, as I suspect is true for most who will purchase this book. But if I had to pick only one key to do, I'd probably choose *Lepidella* as well.

Each section of Amanita as recognized by the authors has an introduction talking about general features of that section, and sometimes how the species within that section are organized. Species are not arranged in alphabetical order, so you'll need to use the index to find your known *Amanita*. Section *Amanita* has species clustered with

their lookalikes (muscaroids, pantherinoids) and close relatives. The description page for section Amidella includes an outdated reference to two former Amidellas now transferred to section Roanokensis: *A. proxima* and *A. ovoidea*, both European species. Blame (or thank) Cui for that one, too!

Described species have a bit of backstory preceding a more formal description. Followers of Tulloss may be shocked to hear the authors claim that just about every species pictured in this book can be identified without benefit of a microscope! Tulloss, of course, is known for his meticulous microscopy. A simple macro-morph ID may be possible in the case of classic examples, but we all know that mushrooms don't always look like their best photos! But despite the authors' protestations, bare microscopic details and Q-values (spore size and shape averages) are provided for most species, allowing readers to go deeper in their confirmation of an ID. I have observed co-author Jay Justice bent over his lab bench doing spore prints and scoping his *Amanita* finds at many forays, so perhaps he was the driving force for including micro data here. Commonly used lab chemicals like Melzer's solutions (amyloid spores turn blue) and KOH (bright yellow in certain species in section Phalloideae) are discussed as ways to confirm and differentiate species.

A breadth of *Amanita* topics are covered, including almost anything even tangentially related to Amanitas. There is extensive information on *Amanita* toxicology, an illustrated guide to *Amanita* development, a history of men who worked on *Amanita*, and fungal *Amanita* parasites. The authors discuss trophic strategies of Amanitas and gravitropism, *Amanita* mycophagy, and amanita mythology. There are photos of mushrooms that kind of look like Amanitas, a brief treatment of *Limacella* (a close *Amanita* relative with a slime veil), and tales of lurid historical *Amanita* poisonings. In a know-your-audience nod, there are Amanitas as drugs and entheogens (including a sly segue to the *Psilocybe* shamanism of María Sabina), and a photograph reference to the Telluride Mushroom Festival, where people dress up as Amanitas and do entheogens.

This is a far cry from the rather short, stodgy, and taxonomically focused prior major *Amanita* book, Jenkin's *Amanita of North America!* And the photos are way, way better. I'd almost call it *FUNGI Mag* in book form!

There is a nice section on how various Amanitas develop and expand beyond their universal veils, with fine illustrations by British mycologist Geoffrey Kibby. The peculiar behavior of Amanitas in captivity, which the authors call gravitropism, is discussed over several pages. Anyone who has left an *Amanita* lying on a table overnight has seen this phenomenon, where the cap continues to grow upwards and orients itself to line up with the earth, gills downward. This phenomenon is not unique to Amanitas, but Amanitas provide some of the most dramatic examples!

Toxicology information is by and large good and detailed. The most dangerous of the *Amanita* toxins are of course amatoxins. The authors go into great

detail explaining the progression of and various treatments for these terrible poisonings.

I was pleased to see that the brand new, highly accurate spot test for amatoxin, Amatoxtest, developed by Candace Bever at the USDA, was given its own page in this book. The Amatoxtest was contrasted with the older, less accurate and rather fraught (concentrated HCl must be used) Meixner test. This new test, similar to a pregnancy test, can be performed using patient urine or rice-sized pieces of mushroom flesh, after the water-soluble amatoxins have been extracted in a small test tube. It should prove to be a big help in clinical settings, confirming an amatoxin poisoning long before liver values start to rise. It is already being used in veterinary clinics across the country.

I was happy to see the authors state that the hemolysins found in *Amanita rubescens* and its relatives are not toxic orally, due to their rapid breakdown at temperatures between 90-100 degrees F and at low pH, conditions found within our own bellies! This was not widely accepted back in 2016, when I gave an *Amanita* toxin talk to NAMA, attended by both Bunyard and Tulloss. Many have been encouraged to cook all blushers well to destroy these toxins, but that might just be overkill with a side of paranoia. There has never been a recorded poisoning with blushers, despite their being a common edible all over the world. Surely someone, somewhere, has "undercooked" a blusher, or even eaten them as ceviche.

There were a few errors in their toxicology information, which I detail here. Phalloidins, one of the deadly toxins found in Death Caps and Destroying Angels, were incorrectly said to not be toxic when injected (pg. 39); there is plenty of evidence to the contrary. It is true that phalloidins are not toxic orally, and the authors agree (pg. 39). A little later, however (pg. 47), while discussing the clinical use of purified phalloidins in cancer research, they make the claim that phalloidins have "killed many humans throughout history;" perhaps they meant to say amatoxins, instead?

There is also no evidence that any North American *Amanita* other than *Amanita smithiana* contains allenic norleucine, a serious toxin that causes temporary kidney failure. Unlike the truly deadly mushroom toxin orellanine, allenic norleucine damages but does not destroy the kidneys, and the kidneys recover with time and medical support. Denis Benjamin, who consulted on the so-called deadly poisoning of two dogs with *Amanita thiersii*, told me that he could not verify their account, and thought that the case should be ignored. Many "Lepidellas" and *Saproamanitas* are eaten in other countries; *A. thiersii* is sold in markets in Mexico.

Several pages are dedicated to visual comparisons of deadly species of Amanitas to edible mushrooms like *Leucoagaricus naucinus* and *Volvopluteus gloiocephalus* (the Straw Mushroom). Some of the choice edible Western *Amanita* species are also visually compared to toxic and deadly lookalikes, a useful discernment if you are a North American

Amanita eater! I am sure that the authors meant to contrast an edible *Agaricus sp.* with white, toxic members of *Amanita* section Phalloideae, but labeling *Agaricus californicus* non-toxic (pg. 20), despite it being a well-known member of the "Lose your Lunch Bunch," was a definite oopsies.

Speaking of eating Amanitas, an entire chapter was dedicated to *Amanita* mycophagy, discussing how *Amanita* eating is common in other countries, and showing some of the species eaten here in North America. This may be shocking news to some, what with the generally dire public impressions of Amanitas. The authors do a good job of "normalizing" edible amanitas, and emphasize that proper identification is essential. The Eastern blushers (a multitude of unpublished but all edible species, lumped under the fast fading name "*amerirubescens*") and the odd *Amanita jacksonii,* one of several Eastern slender Caesars, make up the bulk of species in Eastern *Amanita* mycophagy. *Amanita* eating is a far more common practice in the West, with three fat Caesar's Amanitas (*A. vernicoccora, A. calyptroderma* and *A. "cochiseana*,") one blusher (*Amanita novinupta*) and one stellar grisette (*A. velosa*). These are all non-toxic Amanitas that need no special preparation.

Deliberately eating toxic Amanitas is something else again. A certain well-known American mycologist has been pushing the practice of eating *Amanita muscaria* as an edible since 2008. Sadly, his views are gaining traction, at least here in the West. The authors present a fairly reasonable critique of its use as an edible in their book, alongside a provocative photo of a measuring cup of *A. muscaria* slices, ripe for the boiling! Read the pros and cons of this practice (there are many online sources) and make up your own mind.

A final criticism: in their documentation of amanitology in North America today, the authors apparently chose to ignore a couple of prominent women amanitologists here in the West. Although the wonderful work of Dr. Cathy Cripps, a Rocky Mountain/alpine mycologist was featured, and she wrote a very generous forward that really served as an in-house review, the much-respected Western amanitologist Janet Lindgren was hardly mentioned. This despite the fact of her several amanita publications (*Amanita novinupta, A. aprica, A. pruittii* and *A. alpinicola*), her decades of work with both Tulloss and the PNW Key council, her fine work in *Amanita* toxicology, and her extensive online key to PNW/Western Amanitas. Her online *Amanita* key should have been included with other resources. Here it is now: https://www.svims.ca/council/Amanit.htm.

Another ignored source of some of the most popular *Amanita* pages on the web, created by your reviewer, can be found at: http://www.bayareamushrooms.org

But criticisms aside, there was a need for a modern guide to *North American* Amanitas. Self-published by FUNGI Press, *Amanitas of North America* is a fine addition to your coffee table collection of mushroom books. It's flashy, it's readable (with one caveat: the pages are oddly flimsy and do not hold up to serious browsing. I tore one page merely with a turning, and they easily ruche-up

during serious ID use, with multiple piled sources. Perhaps this error can be fixed in future printings?), it's (mostly) up to date, and it's informative. Whether you are a novice or an old *Amanita* hand, you should find much to like in this book.

Kudos to Britt Bunyard and Jay Justice for creating a splendid new *Amanita* book for our modern age.

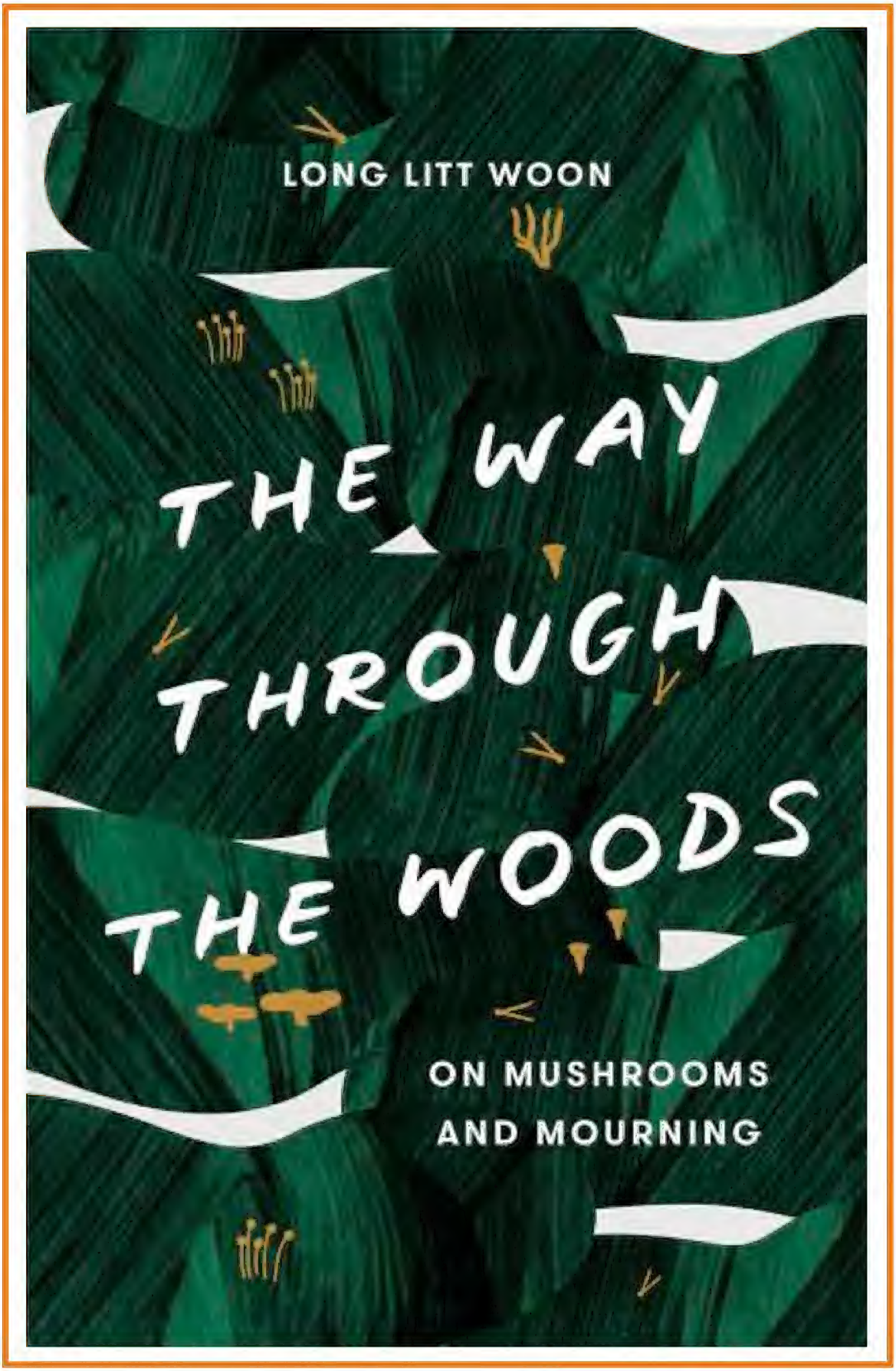
Addendum: The recent major work by Cui et al (2018) has dramatically changed how we look at *Amanita* sections. Rather than break *Amanita* into two subgenera, it is now broken up into three: *Amanita/Amanitina/Lepidella*. Subgenera *Amanitina* was first proposed by Redhead *et al* in their *Saproamanita* paper, and adopted by Cui. Since Lepidella as a section in the sense of Cui only contains the saprobic Amanitas, which Redhead and Vizzini reasonably proposed for a separate genus, *Saproamanita*, it is an easy segue to drop section Lepidella altogether.

All of the other former Lepidellas fall into two new sections: Roanokensis and Strobiliformes. *Amanitas of North America* was written prior to and during the publication of this important paper. It takes a while for changes to percolate through the mycological community and become common knowledge, so it is understandable that the authors used older sections of Amanita. This use may cause some modern confusion, but there is always scientific progress, and any book on mycology starts to become outdated the moment it leaves the press.

Just pencil in any new improved information; the mushrooms are the same.

For those who wish to dive more deeply into the Cui paper, here's a link:

https://www.semanticscholar.org/paper/The-family-Amanitaceae%3A-molecular-phylogeny%2C-and-in-Cui-Cai/630e872985b121c64c4627155cb9929e32971e5b


LONG LITT WOON
THE WAY THROUGH THE WOODS
ON MUSHROOMS AND MOURNING

The Way Through the Woods: On Mushrooms and Mourning

Book Review by Cecily Franklin

By Long Litt Woon
Publisher: Random House
July 2019
ISBN 9781984801036
320 pages
$26.00 USD

Spoiler alerts start early in *The Way through the Woods* by Long Litt Woon. The subtitle, "Of Mushrooms and Mourning," warns us that something bad happens. And then, right there on the first page, her husband unexpectedly dies. "Eiolf went to work and didn't come home."

Woon (as her friends call her) weaves two narratives in this book, describing the devastating loss of her husband and how mushrooms (of all things) helped her to recover from grieving and find new meaning in life. You might say she found "Fungi, Fun and Friends" in other parts of the world. I like to think of her book as a story of "Lost and Found".

Not sure what to do with herself without Eiolf, Woon signed up for a beginning mushroom class offered by the Greater Oslo Fungi & Useful Plant Society. It was something the two of them had discussed but never got around to. The aim of the course was to teach how to recognize about 15 different species of fungi. At the first class, Woon was quickly overwhelmed and intimidated by how much there was to learn. "I felt the fear of being the class dunce well up inside me."

After the first class, the next item was a field trip. "It was incredible to be able to use my newly acquired skills straightaway." She soon became hooked and, before long, felt competent enough to take the certification test for mushroom inspectors. In Norway, mushroom inspection is so well established that people are directed to the Norwegian Mycological Association's inspection service, which requires training and an official exam.

"I remember the moment I walked into the examination room. Along one wall was a long sideboard, and set out on this, on a row of paper plates, were the test mushrooms that awaited me. These I would have to identify one after another, in the order determined by the examiner. I sat at the end of a long table in the middle of the room. Way down at the far end sat the administrative director of the association, who was acting as observer. The proctor sat halfway between us, stone-faced, saying not a word. The examiner was the only one to move, shuttling briskly between the sideboard and me, furnishing me with a steady stream of test mushrooms. It seemed to be over in no time. After a short wait in the corridor, I was called in and informed of the results. I had passed. I was a certified mushroom inspector!"

"As most WPMC members know firsthand, it was hard to feel depressed when you were with Gary Lincoff." Woon shares a couple of experiences with Gary, including this one in Central Park:

"While on a visit to America, I was invited on a private mushroom hunt in New

York by no less a person than the late, great Gary Lincoff. We met as arranged in Central Park, said our hellos, and then, without any more ado, he began to march briskly and purposefully from one tree to another. I had to walk fast to keep up and not lose sight of my guide in one of New York City's best hunting grounds. Then we came around a bend and there was one of the park rangers. He gave a little cough to attract our attention. "Have you been picking mushrooms?" the elderly ranger asked. We had been caught red-handed. "What sort is that" he asked amiably, pointing into Lincoff's basket. Lincoff answered promptly, listing the species by their Latin names. "It is my duty to inform you that it is forbidden to pick flowers or plants in Central Park. There, my job is done!" the ranger said, grinning as he sauntered off."

Later in the book, Woon describes another encounter with Gary Lincoff at the Telluride Mushroom Festival:

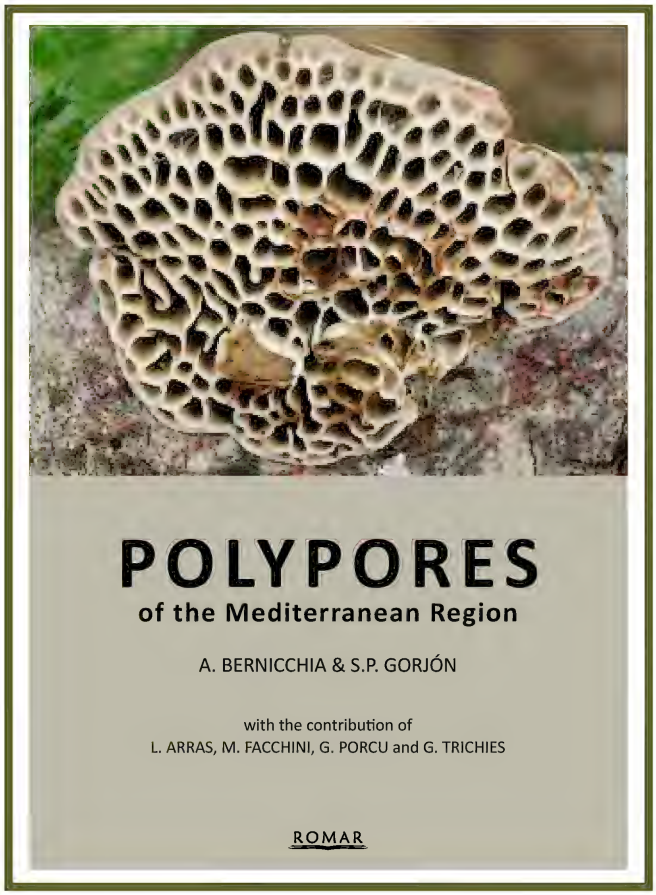
"My most spectacular find—a mushroom that aroused quite a lot of mycological interest—was made not in Norway, but in the United States. It happened on the last day of the Telluride Mushroom Festival. Gary Lincoff was reviewing all the mushrooms found on that day's expedition. I was feeling a bit tired, so I sat down on a large rock nearby. Glancing around, I noticed two fairly large white mushrooms in the grass. When I showed the others my mushrooms, Lincoff gave a great whoop and almost jumped up and down with excitement. It seemed likely that what I had found was *Boletus barrowsii*, or the White King Bolete. My find was remarkable enough to be mentioned in Lincoff's closing speech at the festival."

Woon loves to cook and offers many suggestions for preparing mushrooms, including soup, mushroom bacon and jerky, roasted or pickled mushrooms, paté or sauces, and even desserts. By the end of the book, Woon realizes that she has made the transition from amateur to "hopeless mushroom freak…abnormally fixated on mushrooms."

Welcome to our world, Long Litt Woon!

Cecily Franklin Bio

Cecily Franklin joined the Western Pennsylvania Mushroom Club in 2009 and served as President from 2018 through 2020. She previously served on WPMC's Board as Recording Secretary, Corresponding Secretary, and Vice President. She continues to edit the WPMC newsletter and handle club publicity. In 2015, Cecily won WPMC's President's Award, and in 2017, she received the Club's Outstanding Service award. Cecily has given many presentations, and her mushroom photos have been published in FUNGI Magazine and on the websites of WPMC, Michael Kuo and Gary Emberger.


POLYPORES
of the Mediterranean Region
A. BERNICCHIA & S.P. GORJÓN
with the contribution of
L. ARRAS, M. FACCHINI, G. PORCU and G. TRICHIES
ROMAR

Polypores of the Mediterranean Region

Review by Steve Trudell Seattle, Washington

Annarosa Bernicchia and Sergio Perez Gorjón

2020, Romar SRI
ISBN: 978-88-96182-14-7 (hardcover, 904 pages)
€95 (~$110) plus shipping; bank transfer and PayPal accepted
Order from: www.romar-editrice.it (info@romar-editrice.it) or the first author (corticia.polypores@gmail.com)

Seeing as how most polypores are too tough to eat, the group tends to get little respect from mushroom hunters in North America and, hence, little representation in our field guides. However, that toughness means they are generally persistent and so can be found even when their fleshier, more palatable relatives are scarce. They are ecologically important and some of them actually can be called "pretty," so they are deserving of more attention than they usually receive. Although this recent book is focused on the Mediterranean region, it is more worthy of consideration by North Americans than you might think.

Annarosa Bernicchia's name might be familiar as she is the first author of ***Polyporaceae s.l.***, the 10th volume of ***Fungi Europaei***, published in 2005. Since then, there have been many changes in the world of polypores—many new species have been described and revised classifications have been proposed with their attendant name changes, mostly as a result of phylogenetic analyses utilizing DNA sequence data. While acknowledging the importance of the molecular approach, Bernicchia and Gorjón chose to emphasize the ecological and morphological aspects of this heterogeneous (including representatives from at least 11 orders, from Agaricales to Tremellales) group of fungi. In their words, "There are several ways to attribute a taxonomic name to an unknown specimen, and all of them are equally valid. We can take a small sample from a herbarium, crush it and, after various methods, obtain its entire or partial DNA sequence, and with the aid of computer programs we will probably get a name in the end. We can also go to the field, study the ecology, collect samples and with the help of a microscope identify some features

that help us to give a correct name. This book fundamentally deals with this second option and we hope that with the descriptions, photographs, and keys, the reader will be able to identify those polypores found in the field." Another goal of the authors is to highlight the importance of these fungi in forest conservation, with a focus on key and vulnerable species.

The contents include Introduction; General Characteristics of the Polypores (Macromorphology, Micromorphology, Ecology); The Mediterranean Region; An Approach to Higher Classification of Mediterranean Polypores; Summary Table of Key Features [of genera] of Mediterranean Polypores; Keys to Families, Genera, and Species of Mediterranean Polypores; Descriptions of Genera and Species of Polypores; References; and Index.

The "General Characteristics" section provides descriptions of the features that one needs to understand in order to work with the group, including three pages of line drawings of micro features. Together with the "Summary Table," which includes the general fruitbody shape, nature of the pore, or sometimes gill surface, hyphal system, basidia, spores, type of rot (brown or white), and other features), it provides a good introduction, useful wherever in the world you might be.

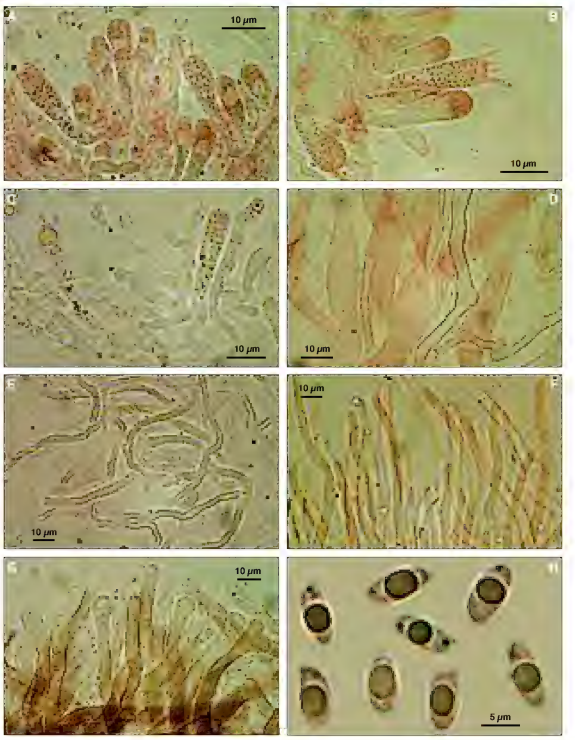


Figure 556 – *Polyporus meridionalis*: A. part of hymenium with longly clavate basidia and long sterigmata; B. some hymenial elements with basidia and cystidioles; C. hymenial elements and sinuous subhymenial hyphae; D. some sinuous and inflated generative hyphae of context; E. skeleto-binding hyphae of trama; F. generative hyphae of dissepiment edges; G. terminal hyphae of epicutis; H. basidiospores (coll. ex HUBO 6963, coll. and photos G. Porcu).

Altogether,116 genera and 435 species are covered, arranged in alphabetical order. Each genus is described, followed by comments about its taxonomic relationships and other aspects, and then a key to its species, sometimes including species in closely related genera. Each species account includes a description of macro and micro features, habitat and distribution information, and remarks, mostly dealing with related or similar-looking species and with taxonomic issues created by the emergence of DNA sequence data. Except for some of the rarer species, the text is supported

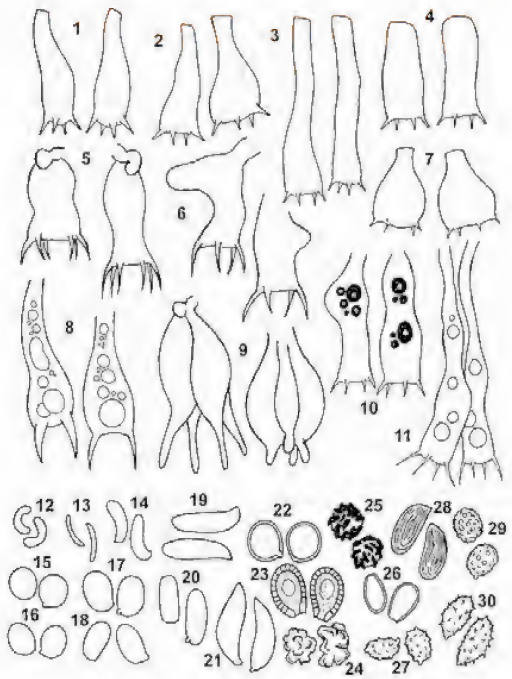


Figure 4 – Basidia. 1. Clavate. 2. Broadly clavate. 3. Tubular. 4. Barrel-shaped. 5. Urniform. 6. Pleural. 7. Subglobose. 8. Clavate, bisterigmate. 9. Longitudinally septate. 10. Constricted. 11. Pedunculate. Basidiospores. 12. Lunate. 13. Narrowly allantoid. 14. Allantoid. 15. Globose. 16. Subglobose. 17. Broadly ellipsoid. 18. Ellipsoid. 19. Cylindrical. 20. Short-cylindrical. 21. Navicular. 22. Thick-walled. 23. Double-layered. 24. Polygonal. 25. Crested. 26. Truncate. 27. Verrucose. 28. Striate. 29. Warted. 30. Echinulate. (Not to scale; drawings S.P. Gorjón)

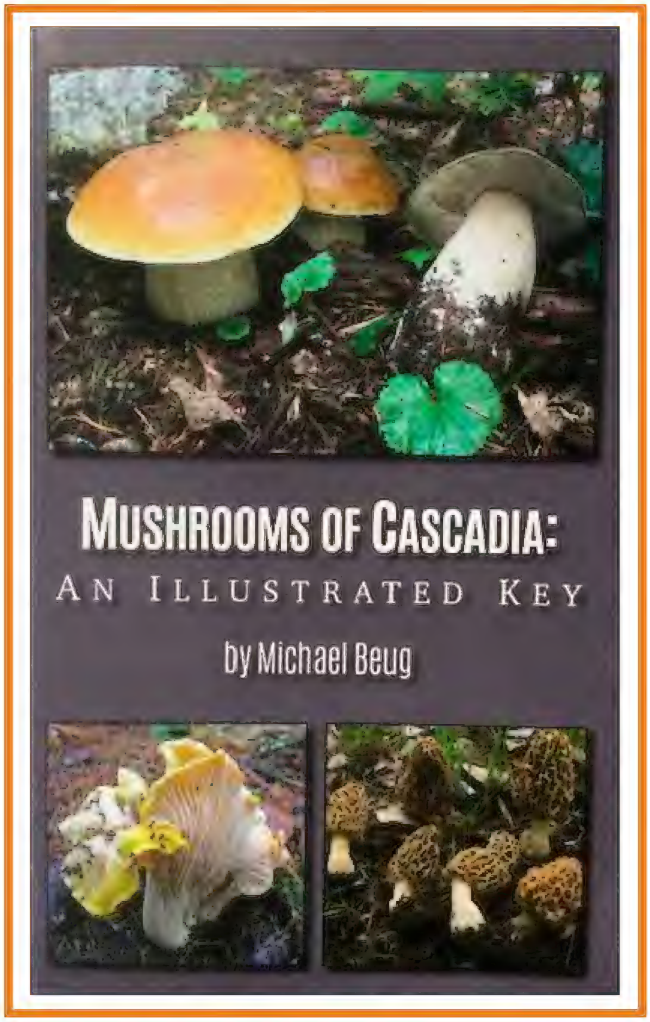
by good to excellent macro and micro photographs, the latter showing hypha types, basidia, spores, and cystidia. The most common synonyms are given.

Polypores of the Mediterranean Region is informative, well-produced, attractively presented, and reasonably priced given its size. But can it be of use for those of us who live outside the Mediterranean area? I think yes. I live in the Pacific Northwest (PNW), where we are lucky to have the software resource, ***MycoMatch*** (a.k.a. ***MatchMaker***), which provides descriptions of several thousand macrofungi from our region, photographs of many of them, a synoptic-key-style interface for identification, and a host of other features. It includes 263 polypore taxa for our region and so I compared the list

of 116 Mediterranean genera with the PNW genera represented in ***MycoMatch***. Seventy-three of the 116 are included in ***MycoMatch***, among them all of the larger and more common genera.

Of the 43 non-represented genera, 31 contain only a single species (in the Mediterranean area, at least) and four is the greatest number of species in any of them. Comparing species would be more problematic but the main point is that this book would be very helpful for developing an understanding of the main polypore genera, most of which occur throughout North America as well as in the Mediterranean region.

The importance of microscopic features for identifying polypores will no doubt limit the number of mushroom hunters willing to tackle that task. But, for those who are, this would be a useful resource.



Mushrooms of Cascadia: An Illustrated Key

Review by Laura Juszczak, PhD

Michael Beug, 2021, The FUNGI Press
ISBN: 978-0-578-90476-4
314 pages; paperback
900+ species
1,000+ color photographs
5.5 x 8.5", $29.95

Don't live in the Pacific Northwest? Not a resident of Cascadia? Before you "swipe left," you should consider that the significance of this guide lies well beyond the confines of Cascadian fungi (as if 4,000 species and 535,000 square miles can be considered confining). In fact, the history of mycology in North America runs through this handy tome. It is a distillation of a life's work in mycology.

The expertise and influence of Dr. Michael Beug is enmeshed with the ascendancy of North American mycology. Beginning in 1975, Dr. Beug was part of the Pacific Northwest Key Council established by mycologist Dr. Daniel Stuntz, and mycological photographer/amateur mycologist Kit Scates Barnhart. As a member of this group from its initiation, he helped to create and field test dichotomous keys for Cascadia species. Dr. Beug is also responsible for finding over 50 previously undiscovered oak-associated *Cortinarius* species in Cascadia, has been the NAMA chair of its toxicology committee since 2001, and was the mentor of Paul Stamets at Evergreen College. Also contributing to this work are photos from the library of Harley and Kit S. Barnhart, which was bequeathed to Dr. Beug.

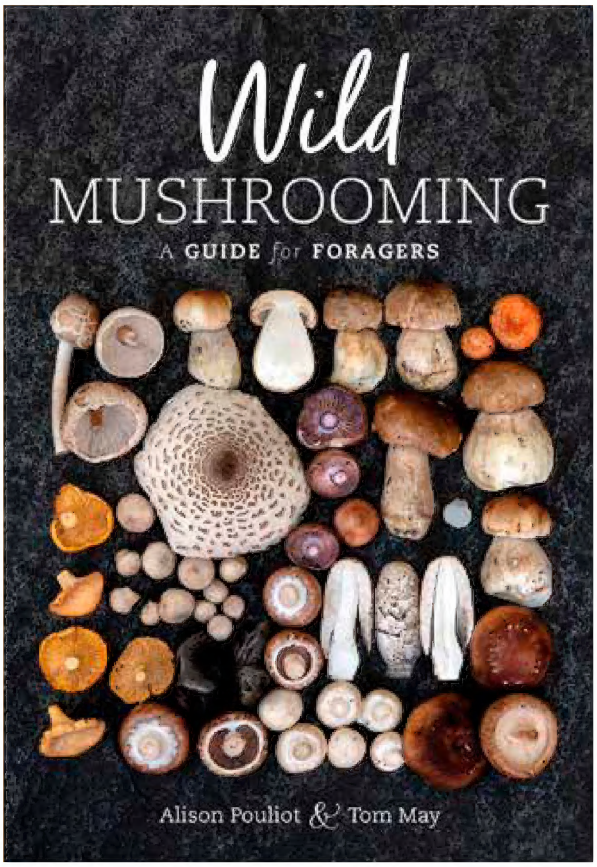
Now for the scope of the key itself. Over 900 species with more than 1,000 photos cover the area from coastal southern Alaska to central California, and inland to Idaho. This key---unlike that of historical Pacific Northwest Key Council keys---is not strictly dichotomous. That is, instead of choosing between two descriptors like "a. Has a conspicuous webby, veil" versus "b. Has no veil," a choice between three or more descriptors may be given. This, of course, accounts for cases where more than two species show similarities, and leads to a more rapid identification; the field of choices is narrowed

more quickly. This can be particularly time-saving when one happens upon a large flush of unidentified mushrooms: should one harvest them all (edible) or just pick a representative sample for the show table (not edible) and move on?

All choices are illustrated *in situ*, and-- -- where necessary---with views of the stipe, cap and gills, and in stages of development. The preponderance of photos was taken by Dr. Bueg. A fair sampling from the Barnhart photo collection are included; a few are contributions of Paul Stamets. Following the illustration with its specific name is a concise list of "*Comments,*" which allows for a more nuanced description of characteristics than pictorial icons. Thus, for "edibility," for example, we have "edibility not tested," "edible but slimy" or "too tough to eat." Additional key distinguishing features included are taste and smell, alternative Linnean names, toxicity, geographic range including elevation, seasonality and key botanical associations.

In general, a reminder is in order regarding the utility of such a handbook to non-Cascadians: many of the included species are found in wide swaths of the North American continent. The key can be used to narrow to genus if not species. Also, the functionality of such a handbook does not depend on cell-phone signal availability. Following your meander through the woods, more nuanced IDs can be made at the aforementioned Key Council downloadable online app, MycoMatch (v. 2.4, 2020) found at mycomatch.com.

Finally, the book design is well-thought-out; many useful features are included. The front inside cover includes a map while the back includes a ruler graded in both inches and centimeters. The front material has concise yet necessary guides to collecting and preparation (Do not taste large, red-pored boletes!). The only disappointment is that the cover is not more durable.



WILD MUSHROOMING: A Guide for Foragers

Review by By Dianna Smith

Alison Pouliot & Tom May
CSIRO Publishing
March 2021
ISBN:9781486311736
320 pages
$49.99 AU (about $37 U.S.)

Wild Mushrooming: A guide for Foragers is different. It is not a conventional field guide that aims to provide readers with descriptions and photos of as many fungal species for a given region that a publisher will allow. The book is written specifically for Australians who are newly awakening to the pleasures of foraging in a country with many unique habitats and organisms, including fungi which may appear to be the same as those covered in most Northern hemisphere field guides, but may be phylogenetically distinct and in terms of their edibility. Alison Pouliot is an ecologist, nature photographer, author of *The Allure of Fungi,* and is involved with international as well as Australian fungal conservation. Tom May, a mycologist and a Principal Research Scientist at Royal Botanic Gardens Victoria, is a taxonomist who has also written extensively on fungal conservation and ecology. The two have artfully merged their areas of expertise and have created a thoughtfully written guide that will appeal to nature enthusiasts of diverse backgrounds. The topics addressed should be part of everyone's basic foundational education for foraging: understanding of fungi, what they are made of, how they feed, their vital functions in the ecosystem, their relationship with other organisms in the ecosystem. The writers urge readers to adopt a slow and conservative approach to starting the satisfying hobby of mushroom foraging that incorporates awareness of the diverse environments to be found on the continent.

The authors describe characteristics of the major morphological groups of fungi and provide representative photos of each. They discuss and illustrate features that should be thoroughly observed regarding color changes in a mushroom cap, hymenium, and stipe over time, how the fruiting body may be connected to its substrate, and the range of possible odors and tastes sensed. Readers are informed on the necessity and procedure for collecting spore prints, determining spore colors of the major genera, and using chemical tests. An entire chapter is devoted to poisonous fungi of Australia, their symptoms, and syndromes. Particular attention is paid to *Amanita phalloides, Amanita muscaria, Agaricus xanthodermus, Chlorophyllum brunneum, Chlorophyllum molybdites, Coprinopsis atramentaria, Omphalotus nidiformis, Paxillus involutus,* and several other fungi known to cause assorted health issues ranging from death to gastrointestinal discomfort. The meatiest chapter (nine) is devoted to descriptions and photos of a selection of just ten well-known edible mushrooms and their toxic lookalikes. These include international favorites such as *Lactarius deliciosus, Coprinus comatus, Lepista nuda, Tremella fuciformis,* puffballs, and even cultivated mushrooms.

The final chapter, entitled "Fungi in the kitchen and on the table" provides information on drying and storing wild mushrooms and on preparing them for cooking by grilling, barbequing, baking, boiling, roasting, frying or skewering. Included are recipes for 29 different meals featuring a wide assortment of both wild and cultivated mushrooms used to create a variety of mouth-watering meals from pâté, salads, soups, pizza, curry, risotto, parmigiana, and ragout, to frittatas and even pickled saffron *Lactarius.* Also provided are the total preparation

times and the number of people each serving will feed. In my view the book is worth purchasing for this section alone. Finally, Pouliot and May the include a glossary of mycological terms and concepts and three pages of recommended further reading and resources for foragers with an interest in pursuing mycological information beyond the obvious culinary benefits of foraging for wild mushrooms. *Wild Mushrooming: A Guide for Foragers* is well-written and researched. The photos and illustrations are clear and instructive. The book will provide potential foragers with ecological and mycological background information everyone needs and should know to forage safely and responsibly. It is a refreshing and original read.

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